

III. Maternal sensitivity and the quality of attachment of day-care and home-reared infants

Introduction

In 1978, Ainsworth, Blehar, Waters & Wall demonstrated that the quality of mother's sensitive behaviors at home is significantly related to the security of the mother-infant attachment relationship as assessed in the Strange Situation. Following the findings of Ainsworth et al. (1978), empirical support for this association between maternal interactive behaviors and the quality of the mother-infant attachment relationship is provided by several researchers, even though the evidence is sometimes weak (Goldsmith & Alansky, 1987). The studies are mainly based on the observation of mothers who take full time care of their infants at home. For the employed mothers of day-care infants, the existence of this relationship is only implicitly assumed (e.g., Belsky, 1988; Clarke-Stewart, 1988).

For this reason the following questions are addressed in this study. Is the association between maternal interactive behaviors and the quality of mother-infant attachment similar for day-care - and home-reared infants? And secondly, are

the relationships in line with the original findings of attachment theory?

Method

The sample consisted of 62 one-year-old infants. Thirty-two infants visited a day-care centre for a minimum of 20 hours per week, the other 30 were full time cared for at home by their parents. On average the mothers of day-care infants were employed for 29.03 hours per week ($sd = 8.00$), the mothers of homereared infants for 3.33 hours per week ($sd = 8.16$).

Three observation scales for maternal interactive behaviors were used. Ainsworth's 9-point scale was used in order to measure mother's Sensitivity during play-sessions with her infant (Ainsworth et al., 1978). The Recognition and Interpretation scale (R&I), a questionnaire developed by Hoeksma & Koomen (1991), was utilized to measure the degree to which the mother is able to notice and understand a variety of infant signals, behaviors and moods. The nine 5-point rating scales of Wijnroks (1994) were used to score other aspects of maternal interactive behavior during play-situations, such as mother's Tempo, Quality of handling, Level of engagement, Frequency of vocalization, Frequency of positive emotional expression, Quality of timing, Non-directiveness, Non-interference and Responsiveness. These nine interactive behaviors were subjected to principal component analysis with oblimin rotation. This resulted in two components that accounted for 74% of the variance. Based on these two extracted components, two summary variables were created: Involvement & Stimulation, and Overt Expressions.

All mother-infant dyads were observed in the Strange Situation according to the guidelines of Ainsworth et al. (1978).

The data were analyzed using log-linear models. To that end the interval variables Sensitivity, Recognition & Interpretation, Involvement & Stimulation and Overt Expressions were dichotomized (high versus low scores) on the basis of the median value.

Results

Table 1, containing four subtables, shows mothers with low and high scores on the

variables Sensitivity (Table 1a), Recognition & Interpretation (Table 1b), Involvement & Stimulation (Table 1c), and Overt Expressions (Table 1d), divided by infants' security of attachment and care history.

For the variable Sensitivity the so-called saturated model could not be rejected ($G^2=4.35$, $Df=1$, $p<.05$). As the data demonstrate, the home-reared infants of high sensitive mothers are more likely to be securely attached than the day-care infants of high sensitive mothers. In other words, the relationship between sensitivity and the quality of attachment is much stronger in the group of home-reared infants.

Table 1a, b, c, and d: Mothers with low and high scores on the variables Sensitivity, Recognition & Interpretation, Involvement & Stimulation, and Overt Expressions, divided by infants' security of attachment (A versus B) and care history (day-care versus home-reared).¹

Table 1a: Sensitivity

	Day-care infants' Classifications		Home-reared infants' Classifications	
	A	B	A	B
low	6	9	5	8
high	4	12	-	16
	10	21	5	24

Table 1b: Recognition & Interpretation

	Day-care infants' Classifications		Home-reared infants' Classifications	
	A	B	A	B
low	4	10	3	8
high	5	12	2	17
	9	22	5	25

Table 1c: Involvement & Stimulation

	Day-care infants' Classifications		Home-reared infants' Classifications	
	A	B	A	B
low	5	10	5	10
high	5	11	-	14
	10	21	5	24

Table 1d: Overt Expressions

	Day-care infants' Classifications		Home-reared infants' Classifications	
	A	B	A	B
low	7	11	1	10
high	3	10	4	14
	10	21	5	24

¹ Due to technical failure, one mother within each group of infants had missing data on the variables Sensitivity, Involvement & Stimulation, and Overt Expressions. Another mother of a day-care infant did not return the Recognition & Interpretation questionnaire.

The analysis of the variable Involvement & Stimulation gave similar results. The saturated model could not be rejected ($G^2=5.12$, $Df=1$, $p < .05$). It appeared that the relationship between mothers' Involvement & Stimulation and the security of attachment is virtually absent for day-care infants. The log-linear analyses of the variables Recognition & Interpretation and Overt Expressions resulted in the so-called independence model ($G^2=3.15$, $Df=4$, $p = .53$ and $G^2= 6.06$, $Df=4$, $p = .20$). This indicates that the infants' security of attachment is not related to mothers' Recognition & Interpretation capacities or mothers' Overt Expressions.

Discussion

The data of this investigation reveal that the well-known relationship between the quality of attachment and maternal interactive behaviors, such as Sensitivity and Involvement & Stimulation, was only found for home-reared infants. For day-care infants the relationship was hardly present. How should this result be interpreted?

Could it be that working mothers just do not spend enough time with their infants to influence the quality of the attachment relationship? Because other studies have shown that the time mothers and infants pass together is not related to infants' attachment development (see Clarke-Stewart, 1988), it is unlikely that this is the most plausible interpretation. Alternatively, is it possible that the quality of the mother-infant attachment relationship in the first years of day-care infant's life is determined by both the quality of care afforded by the mother

and by other caregivers? This was suggested by Belsky & Cassidy (1994), but has not yet been investigated. Future research has to clarify whether the quality of care of day-care workers actually affects the quality of an infant's attachment to his or her mother.

The most obvious interpretation, however, is that the Strange Situation does not give the same insight into the security of attachment for home-reared- and day-care-infants. Preliminary data involving the same sample, showed that the day-care infants are less distressed by the Strange Situation than the home-reared infants, that they are more often classified as avoidant when little or no stress was experienced, and that the mean relative heart-rate changes of these infants were very small, even during the aversive episodes of the procedure (Verweij-Tijsterman, 1996). The fact that no association between meaningful maternal behaviors, such as sensitivity, and the quality of the mother-infant attachment relationship could be found for these day-care infants makes it even more reasonable to ask whether the observed strange-situation behaviors of day care infants have the same meaning as the strange-situation behaviors of home-reared infants.

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